CDGM

QB系列近红外截止青蓝色滤光玻璃

QB IR Cut-off Blue Filter Glass

成都光明光电股份有限公司
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产 品 手 册
Product catalogue

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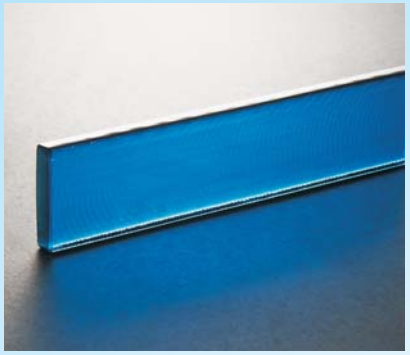


成都光明的QB系列红外截止滤光玻璃，适用于相机、手机、CCTV等CCD/CMOS图像传感器中，通过对700nm以上红外光截止，提升图像清晰度和色彩真实度。

成都光明从2008年开发QB系列玻璃，已开发QB50A、QB52等7个品种，分别满足相机、手机、CCTV的各项要求，已大量使用在各终端产品中。

QB系列玻璃的新品开发：为了获得更好的红外抑制效果，光明已经开发出最新QB6系列蓝玻璃，在确保可见光区具有良好的透过特性下，实现更高的红外光抑制。

CDGM QB IR cut off filter applications： CCD/CMOS for phone, camera and cctv. Infrared light more than 700 nm can be completely filtered by blue glass to obtain high definition image.

Through 6 years of development from 2008, CDGM has 7 QB products like QB50A、QB52 that have wide end application for phone , camera and cctv.

The latest QB6 glass has improved visible transmittance and better IR cut-off property.

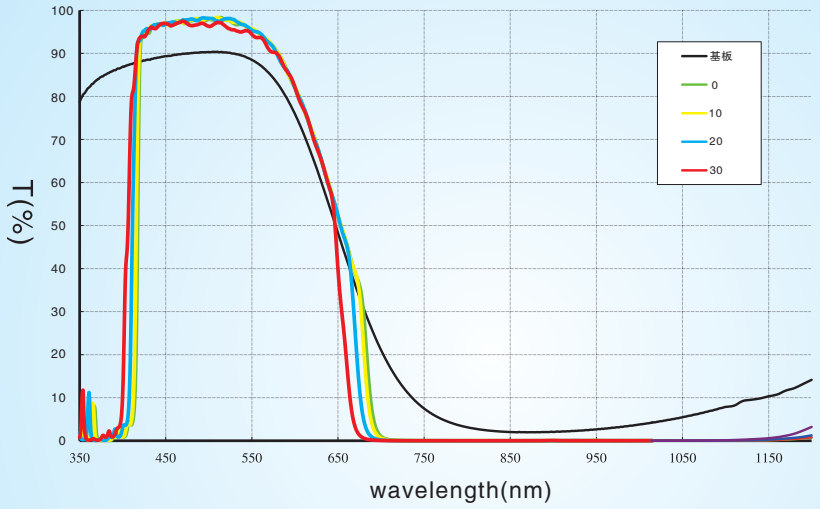
厚度mm	QB50A	QB52	QB53	QB54	QB55	QB56	QB58
1.2	613						
1.0	620	601					
0.8		609					
0.7			603				
0.6	645	621	610	602			
0.45		635		613			
0.4	669	641					
0.3		657	644	632	622	617	607
0.21				650	641	634	622
0.175					650	643	632
0.145							642

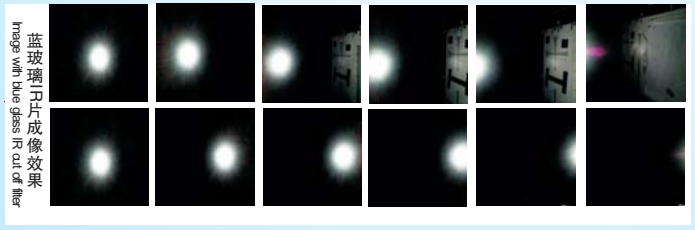
QB系列玻璃优点 Advantages

1.采用吸收的方式实现对红外光的抑制，,随光线入射角度偏移,透光曲线变化小。避免红外光引起的“鬼影和光斑”。

1.By absorption of IR ray, incident angular deflection induced transmittance curve change is small to avoid ghost and flare.

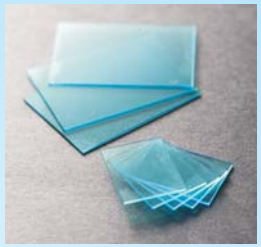
材料镀膜之后角度对应曲线

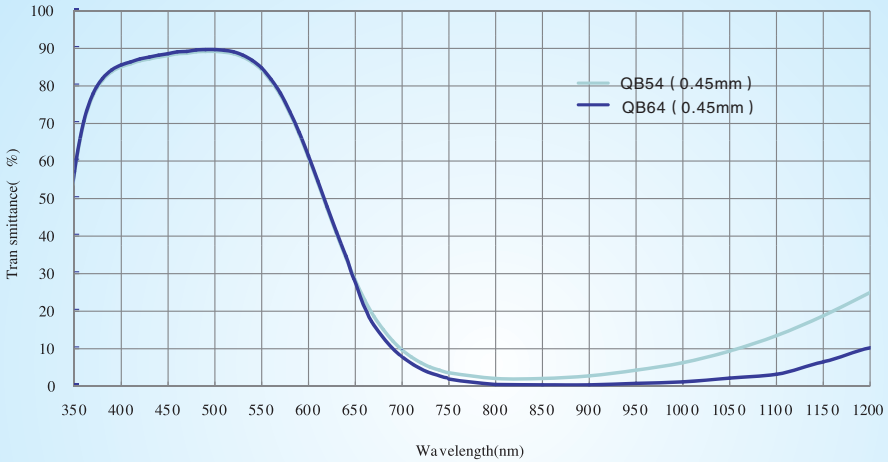




2.为了获得更好的红外抑制效果，光明已经开发出最新QB6系列蓝玻璃，在确保可见光区具有良好的透过特性下，实现更高的红外光抑制。

2.The latest QB6 glass has improved visible transmittance and better IR cut-off property.





QB50A

Thickness =1.0 mm Reflection Factor P_d=0.921

λnm	300	320	340	360	380	400	420	440	460	480						
τ%	0.0	3.7	51.1	76.3	86.2	88.4	89.9	90.5	91.2	91.5						
λnm	500	520	540	560	580	600	620	640	660	680						
τ%	91.6	90.7	89.0	83.5	74.5	62.0	49.5	36.0	25.0	16.5						
λnm	700	720	740	760	780	800	820	840	860	880						
τ%	10.2	6.5	4.0	2.1	1.6	1.3	1.2	1.2	1.7	1.9						
λnm	900	920	940	960	980	1000	1020	1040	1060	1080						
τ%	2.1	2.4	2.8	3.2	3.8	4.5	5.4	6.4	7.5	8.8						
λnm	1100	1120	1140	1160	1180	1200										
τ%	10.0	11.5	13.4	15.0	17.0	19.0										

Refractive index

Symbol	C	d	e	F	g
λnm	656.3	587.6	546.1	486.1	435.8
n	1.508	1.511	1.512	1.515	1.519

Abbe-Number

$$\upsilon_d=\frac{n_d-1}{n_F-n_C}=73.7$$

Tolerances of Transmittance(T)

T_{400nm} (%)	$\lambda_{T50\%}$ (nm)	T_{1200nm} (%)
≥88.3	620±6	≤19.0

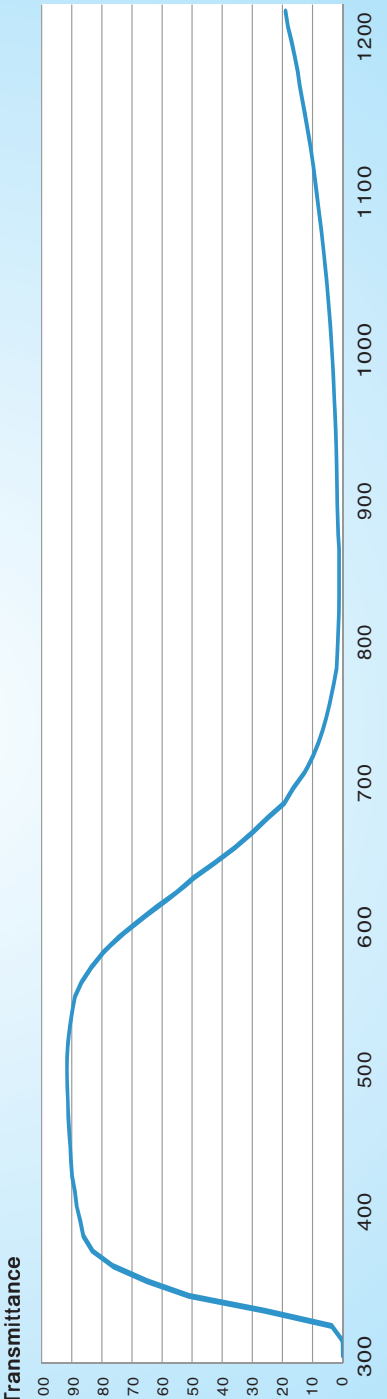
Color Specifications

	x	y	Y	λ_d	P_e
A	0.400	0.421	76.4	500	0.11
C	0.275	0.312	80.9	490	0.13
D_{65}	0.278	0.325	81.0	490	0.13

Properties

Chemical		Thermal				Mechanical					other
D_W	D_A	T_g	T_s	$\alpha_{20-120°C}$	$\alpha_{20-300°C}$	H_K	F_A	E	G	μ	ρ
1	3	362	401	129	151	437	315	7589	2959	0.282	3.35

Transmittance



QB52

Thickness =0.6 mm Reflection Factor P_d=0.921

λnm	300	320	340	360	380	400	420	440	460	480
τ%	0.0	2.9	42.1	73.2	83.4	86.5	87.9	88.8	89.5	90.0
λnm	500	520	540	560	580	600	620	640	660	680
τ%	90.2	89.5	87.4	82.6	75.1	63.3	49.5	36.2	22.9	15.1
λnm	700	720	740	760	780	800	820	840	860	880
τ%	9.6	6.2	4.2	3.0	2.4	2.0	1.9	1.8	2.4	2.6
λnm	900	920	940	960	980	1000	1020	1040	1060	1080
τ%	2.8	3.2	3.8	4.3	4.8	5.4	5.8	6.6	7.5	8.5
λnm	1100	1120	1140	1160	1180	1200				
τ%	9.6	11.1	12.6	14.5	16.3	18.0				

Refractive index

Symbol	C	d	e	F	g
λnm	656.3	587.6	546.1	486.1	435.8
n	1.523	1.526	1.527	1.531	1.535

Abbe-Number

$$\upsilon_d=\frac{n_d-1}{n_F-n_C}=68.4$$

Tolerances of Transmittance (T)

T_{400nm} (%)	$\lambda_{T50\%}$ (nm)	T_{1200nm} (%)
≥86.0	621±6	≤18.0

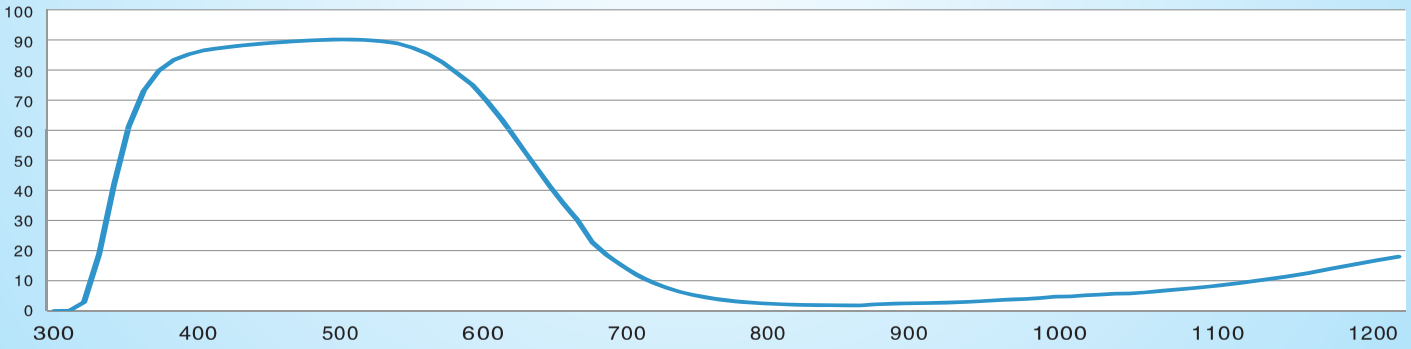
Color Specifications

	x	y	Y	λ_d	P_e
A	0.410	0.420	78.0	501	0.08
C	0.283	0.316	81.6	491	0.13
D_{65}	0.286	0.328	81.7	491	0.13

Properties

Chemical		Thermal				Mechanical					other
D_W	D_A	T_g	T_s	$\alpha_{20\sim120℃}$	$\alpha_{20\sim300℃}$	H_K	F_A	E	G	μ	ρ
1	3	351	391	136	155		321	7503	2939	0.276	3.28

Transmittance



QB53

Thickness =0.30 mm Reflection Factor P_d=0.917

λnm	300	320	340	360	380	400	420	440	460	480
τ%	0.0	13.7	61.5	82.6	88.2	89.6	90.3	90.7	90.8	91.0
λnm	500	520	540	560	580	600	620	640	660	680
τ%	91.0	90.6	89.2	86.2	80.7	72.8	63.0	52.1	41.3	32.3
λnm	700	720	740	760	780	800	820	840	860	880
τ%	24.9	19.4	15.4	12.9	11.2	10.2	9.9	9.9	10.4	11.2
λnm	900	920	940	960	980	1000	1020	1040	1060	1080
τ%	12.0	13.1	14.5	16.0	17.6	19.3	21.4	23.4	25.7	28.0
λnm	1100	1120	1140	1160	1180	1200				
τ%	30.5	32.9	35.5	38.2	40.8	43.4				

Refractive index

Symbol	C	d	e	F	g
λnm	656.3	587.6	546.1	486.1	435.8
n	1.525	1.527	1.529	1.532	1.537

Abbe-Number

$$\upsilon_d=\frac{n_d-1}{n_F-n_C}=67.7$$

Tolerances of Transmittance (T)

T_{400nm} (%)	$\lambda_{T50\%}$ (nm)	T_{1200nm} (%)
≥89.0	644±6	≤44.0

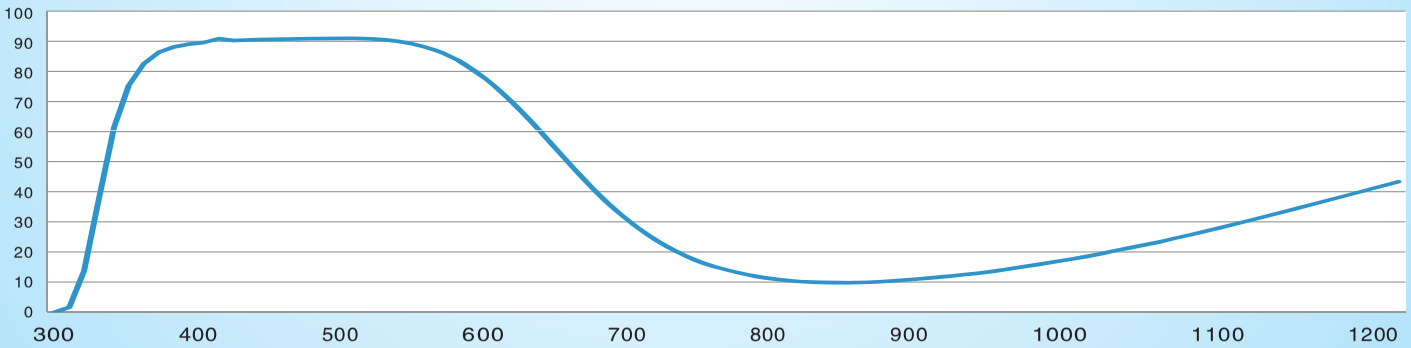
Color Specifications

	x	y	Y	λ_d	P_e
A	0.410	0.419	78.9	500	0.09
C	0.282	0.314	82.6	490	0.11
D_{65}	0.285	0.326	82.7	490	0.10

Properties

Chemical		Thermal				Mechanical					other
D_W	D_A	T_g	T_s	$\alpha_{20\sim120℃}$	$\alpha_{20\sim300℃}$	H_K	F_A	E	G	μ	ρ
1	3	358	397	128	149	432	323	8238	3226	0.277	3.29

Transmittance



QB54

Thickness =0.30 mm Reflection Factor P_d=0.917

λnm	300	320	340	360	380	400	420	440	460	480
τ%	0.0	13.7	61.5	82.6	88.2	89.6	90.3	90.7	90.8	91.0
λnm	500	520	540	560	580	600	620	640	660	680
τ%	91.0	90.6	89.2	86.2	80.7	72.8	63.0	52.1	41.3	25.2
λnm	700	720	740	760	780	800	820	840	860	880
τ%	18.3	13.5	10.2	8.1	6.9	6.2	5.9	5.9	6.6	7.1
λnm	900	920	940	960	980	1000	1020	1040	1060	1080
τ%	7.8	8.7	9.7	10.8	12.2	13.7	15.4	17.2	19.2	21.3
λnm	1100	1120	1140	1160	1180	1200				
τ%	23.5	26.0	28.5	31.1	33.8	36.4				

Refractive index

Symbol	C	d	e	F	g
λnm	656.3	587.6	546.1	486.1	435.8
n	1.524	1.527	1.528	1.532	1.536

Abbe-Number

$$\upsilon_d=\frac{n_d-1}{n_F-n_C}=66.4$$

Tolerances of Transmittance (T)

T_{400nm} (%)	$\lambda_{T50\%}$ (nm)	T_{1200nm} (%)
≥87.5	632±6	≤37.0

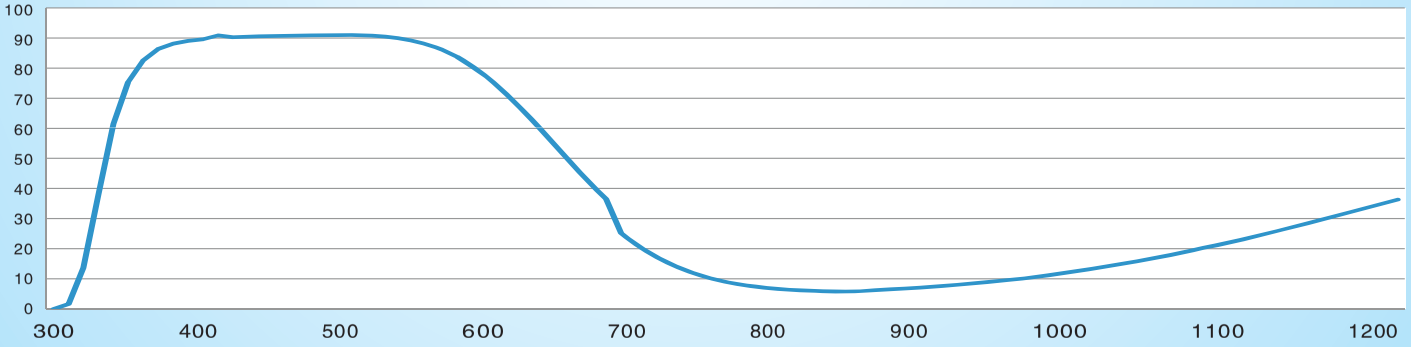
Color Specifications

	x	y	Y	λ_d	P_e
A	0.410	0.419	78.9	500	0.09
C	0.282	0.314	82.6	490	0.11
D_{65}	0.285	0.326	82.7	490	0.10

Properties

Chemical		Thermal				Mechanical					other
D_W	D_A	T_g	T_s	$\alpha_{20\sim120℃}$	$\alpha_{20\sim300℃}$	H_K	F_A	E	G	μ	ρ
2	4	356	395	136	155		320	8246	3228	0.277	3.29

Transmittance



QB55

Thickness =0.21 mm Reflection Factor P_d=0.916

λnm	300	320	340	360	380	400	420	440	460	480
τ%	0.0	8.7	52.7	78.9	86.4	88.6	89.4	89.9	90.2	90.5
λnm	500	520	540	560	580	600	620	640	660	680
τ%	90.6	90.1	88.8	85.6	80.0	71.9	61.5	50.5	39.6	30.6
λnm	700	720	740	760	780	800	820	840	860	880
τ%	23.3	17.8	14.1	11.6	10.0	9.1	8.9	8.9	9.8	10.9
λnm	900	920	940	960	980	1000	1020	1040	1060	1080
τ%	11.4	12.1	13.6	14.9	16.4	18.3	20.1	22.0	24.3	26.5
λnm	1100	1120	1140	1160	1180	1200				
τ%	29.0	31.5	34.1	36.7	39.4	42.1				

Refractive index

Symbol	C	d	e	F	g
λnm	656.3	587.6	546.1	486.1	435.8
n	1.526	1.528	1.530	1.534	1.538

Abbe-Number

$$\upsilon_d=\frac{n_d-1}{n_F-n_C}=65.3$$

Tolerances of Transmittance (T)

T_{400nm} (%)	$\lambda_{T50\%}$ (nm)	T_{1200nm} (%)
≥88.0	641±6	≤43.0

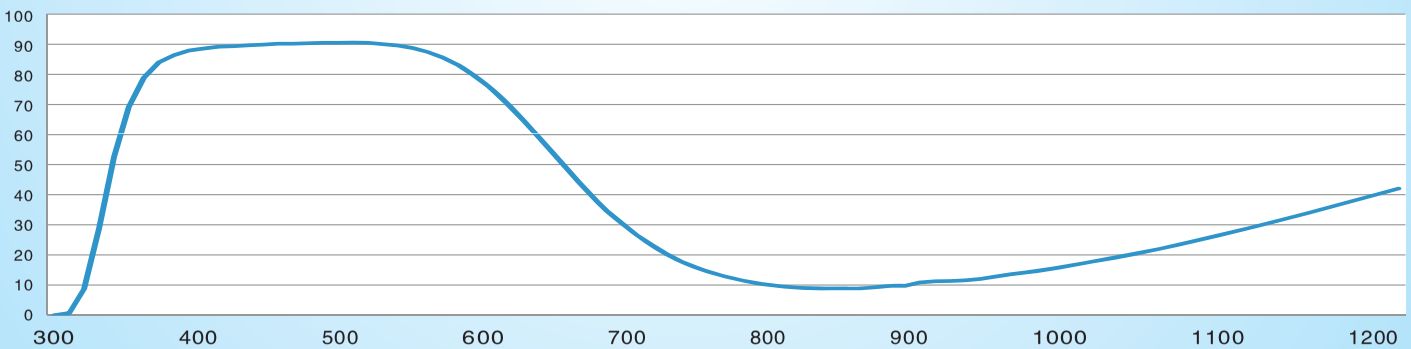
Color Specifications

	x	y	Y	λ_d	P_e
A	0.409	0.419	78.1	500	0.09
C	0.281	0.614	81.9	490	0.11
D_{65}	0.284	0.326	82.0	490	0.11

Properties

Chemical		Thermal				Mechanical					other
D_W	D_A	T_g	T_s	$\alpha_{20\sim120℃}$	$\alpha_{20\sim300℃}$	H_K	F_A	E	G	μ	ρ
1	3	360	395	125	148	446	313	8236	3226	0.277	3.30

Transmittance



QB56

Thickness =0.21 mm Reflection Factor P_d=0.916

λnm	300	320	340	360	380	400	420	440	460	480
τ%	0.0	4.1	42.8	73.2	83.4	86.5	87.8	88.6	89.3	89.7
λnm	500	520	540	560	580	600	620	640	660	680
τ%	89.8	89.4	87.8	84.3	78.0	68.9	57.8	46.0	34.7	25.9
λnm	700	720	740	760	780	800	820	840	860	880
τ%	18.9	14.1	10.8	8.6	7.2	6.5	6.1	6.3	7.0	7.4
λnm	900	920	940	960	980	1000	1020	1040	1060	1080
τ%	8.2	8.9	10.1	11.3	12.6	14.1	15.7	17.6	19.7	21.8
λnm	1100	1120	1140	1160	1180	1200				
τ%	24.1	26.4	29.0	31.6	34.2	36.9				

Refractive index

Symbol	C	d	e	F	g
λnm	656.3	587.6	546.1	486.1	435.8
n	1.527	1.530	1.532	1.535	1.540

Abbe-Number

$$\upsilon_d=\frac{n_d-1}{n_F-n_C}=64.8$$

Tolerances of Transmittance (T)

T_{400nm} (%)	$\lambda_{T50\%}$ (nm)	T_{1200nm} (%)
≥85.0	633±6	≤38.0

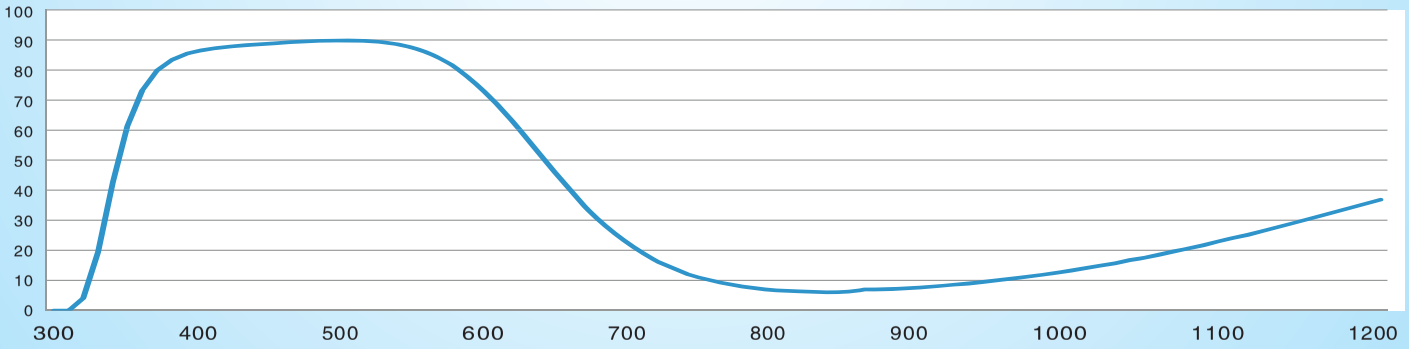
Color Specifications

	x	y	Y	λ_d	P_e
A	0.409	0.419	78.1	500	0.09
C	0.281	0.314	81.9	490	0.11
D_{65}	0.284	0.326	82.0	490	0.11

Properties

Chemical		Thermal				Mechanical					other
D_W	D_A	T_g	T_s	$\alpha_{20\sim120℃}$	$\alpha_{20\sim300℃}$	H_K	F_A	E	G	μ	ρ
1	3	343	389	138	156		321	8200	3001	0.277	3.31

Transmittance



QB58

Thickness =0.175 mm Reflection Factor P_d=0.916

λnm	300	320	340	360	380	400	420	440	460	480
τ%	0.0	3.1	38.8	70.9	82.0	85.5	87.0	88.0	88.6	89.1
λnm	500	520	540	560	580	600	620	640	660	680
τ%	89.4	89.0	87.5	83.9	77.5	68.3	56.8	45.0	33.6	24.7
λnm	700	720	740	760	780	800	820	840	860	880
τ%	17.7	12.9	9.6	7.6	6.4	5.5	5.3	5.3	6.0	6.6
λnm	900	920	940	960	980	1000	1020	1040	1060	1080
τ%	6.8	7.8	8.5	9.8	10.8	12.3	13.8	15.5	17.3	19.4
λnm	1100	1120	1140	1160	1180	1200				
τ%	21.4	23.8	26.1	28.7	31.3	33.9				

Refractive index

Symbol	C	d	e	F	g
λnm	656.3	587.6	546.1	486.1	435.8
n	1.534	1.537	1.539	1.543	1.548

Abbe-Number

$$\upsilon_d=\frac{n_d-1}{n_F-n_C}=62.0$$

Tolerances of Transmittance (T)

T_{400nm} (%)	$\lambda_{T50\%}$ (nm)	T_{1200nm} (%)
≥84.0	632±6	≤35.0

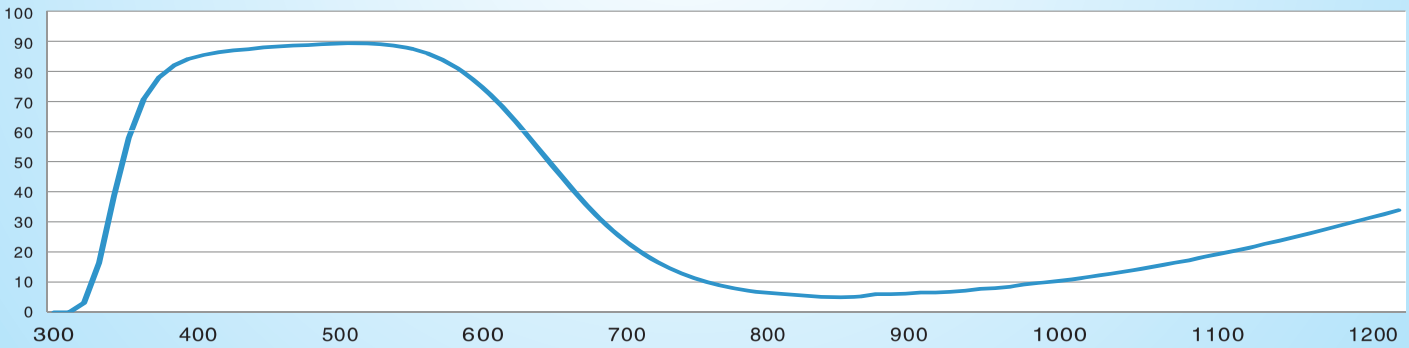
Color Specifications

	x	y	Y	λ_d	P_e
A	0.377	0.428	67.4	500	0.16
C	0.260	0.311	73.4	490	0.19
D_{65}	0.263	0.324	73.6	490	0.19

Properties

Chemical		Thermal				Mechanical					other
D_W	D_A	T_g	T_s	$\alpha_{20\sim120℃}$	$\alpha_{20\sim300℃}$	H_K	F_A	E	G	μ	ρ
1	3	352	394	125	148	437	321	8238	3230	0.276	3.27

Transmittance



QB63

Thickness =0.60 mm Reflection Factor P_d=0.913

λnm	300	320	340	360	380	400	420	440	460	480
τ%	0.0	3.8	51.3	80.3	87.0	88.4	89.4	90.1	90.1	90.6
λnm	500	520	540	560	580	600	620	640	660	680
τ%	90.3	89.4	86.7	81.2	71.7	58.5	43.2	28.8	17.0	9.4
λnm	700	720	740	760	780	800	820	840	860	880
τ%	4.8	2.4	1.2	0.7	0.4	0.3	0.2	0.2	0.7	0.5
λnm	900	920	940	960	980	1000	1020	1040	1060	1080
τ%	0.5	0.6	0.7	0.7	0.8	1.0	1.2	1.5	1.8	2.1
λnm	1100	1120	1140	1160	1180	1200				
τ%	2.6	3.2	3.9	4.7	5.8	6.9				

Refractive index

Symbol	C	d	e	F	g
λnm	656.3	587.6	546.1	486.1	435.8
n	1.538	1.541	1.543	1.547	1.551

Abbe-Number

$$\upsilon_d=\frac{n_d-1}{n_F-n_C}=62.0$$

Tolerances of Transmittance (T)

T_{400nm} (%)	$\lambda_{T50\%}$ (nm)	T_{1200nm} (%)
≥87.5	611±3	≤7.5

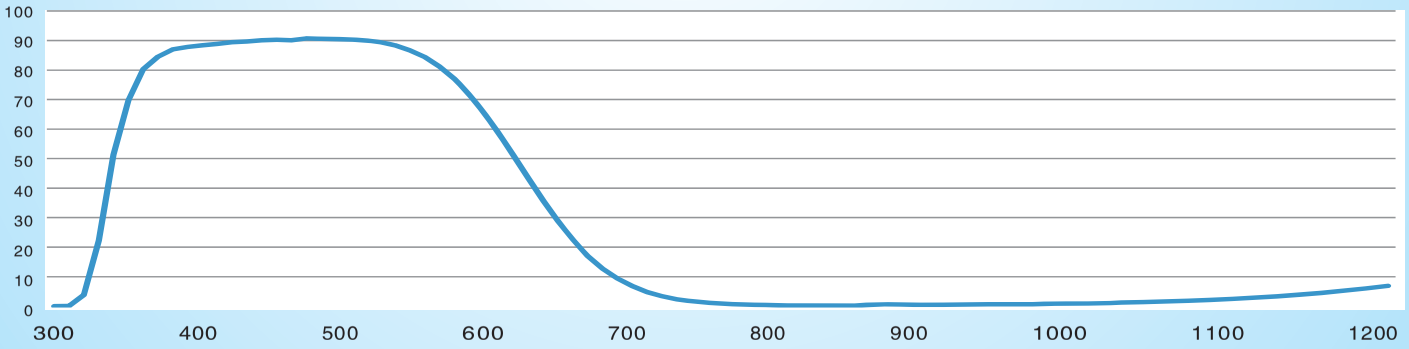
Color Specifications

	x	y	Y	λ_d	P_e
A	0.380	0.426	70.4	500	0.15
C	0.261	0.309	76.3	489	0.19
D_{65}	0.265	0.322	76.5	490	0.18

Properties

Chemical			Thermal				Mechanical					other
D_W	D_A	CR	T_g	T_s	$\alpha_{20\sim120℃}$	$\alpha_{20\sim300℃}$	H_K	F_A	E	G	μ	ρ
2	5	6	367	405	137	152	322	499	5996	2356	0.273	3.05

Transmittance



QB64

Thickness =0.30 mm Reflection Factor P_d=0.913

λnm	300	320	340	360	380	400	420	440	460	480
τ%	0.4	11.6	63.3	85.3	89.5	90.8	90.9	90.3	90.7	90.8
λnm	500	520	540	560	580	600	620	640	660	680
τ%	91.0	90.3	89.0	85.2	79.0	70.1	58.5	46.1	34.0	24.0
λnm	700	720	740	760	780	800	820	840	860	880
τ%	16.2	10.8	7.3	5.1	3.8	3.1	2.7	2.6	3.3	3.0
λnm	900	920	940	960	980	1000	1020	1040	1060	1080
τ%	3.2	3.5	3.9	4.4	5.0	5.9	6.7	7.6	8.7	10.0
λnm	1100	1120	1140	1160	1180	1200				
τ%	11.3	12.8	14.5	16.3	18.2	20.3				

Refractive index

Symbol	C	d	e	F	g
λnm	656.3	587.6	546.1	486.1	435.8
n	1.538	1.541	1.543	1.547	1.551

Abbe-Number

$$\upsilon_d=\frac{n_d-1}{n_F-n_C}=62.0$$

Tolerances of Transmittance (T)

T_{400nm} (%)	$\lambda_{T50\%}$ (nm)	T_{1200nm} (%)
≥90.0	633±3	≤22.5

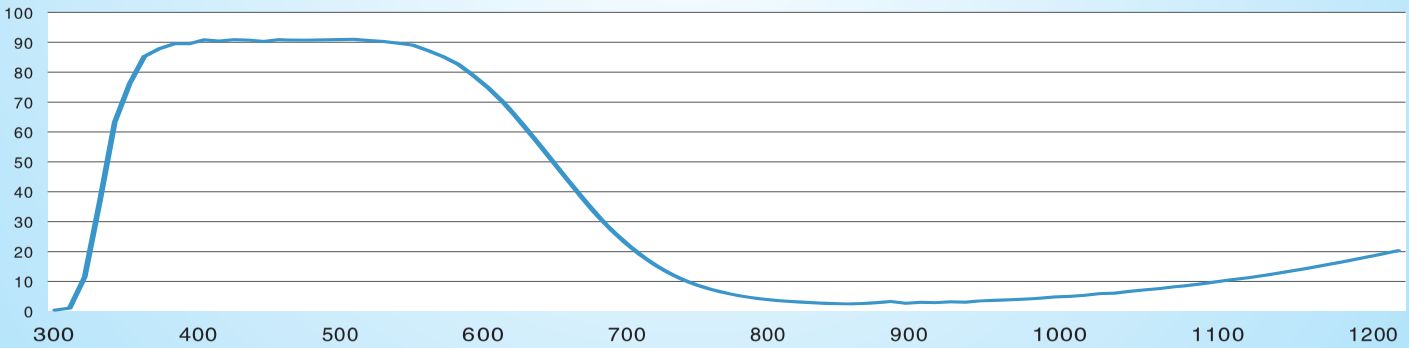
Color Specifications

	x	y	Y	λ_d	P_e
A	0.380	0.426	70.4	500	0.15
C	0.261	0.309	76.3	489	0.19
D_{65}	0.265	0.322	76.5	490	0.18

Properties

Chemical			Thermal				Mechanical					other
D_W	D_A	CR	T_g	T_s	$\alpha_{20\sim120℃}$	$\alpha_{20\sim300℃}$	H_K	F_A	E	G	μ	ρ
2	5	6	367	405	137	152	322	499	5996	2356	0.273	3.05

Transmittance



QB75

Thickness =0.21 mm Reflection Factor P_d=0.913

λnm	300	320	340	360	380	400	420	440	460	480
τ%	0.5	22.5	59.2	74.5	79.5	82.2	84.5	86.2	87.2	88.6
λnm	500	520	540	560	580	600	620	640	660	680
τ%	88.9	89.0	88.0	85.7	80.6	73.3	63.6	53.2	42.7	33.6
λnm	700	720	740	760	780	800	820	840	860	880
τ%	25.9	20.0	15.6	12.3	10.2	8.7	7.7	7.0	7.0	6.5
λnm	900	920	940	960	980	1000	1020	1040	1060	1080
τ%	6.5	6.8	7.1	7.5	8.0	8.9	9.6	10.6	11.7	13.0
λnm	1100	1120	1140	1160	1180	1200				
τ%	14.4	15.8	17.3	18.9	20.6	22.3				

Refractive index

Symbol	C	d	e	F	g
λnm	656.3	587.6	546.1	486.1	435.8
n	1.537	1.540	1.542	1.546	1.550

Abbe-Number

$$\upsilon_d = \frac{n_d - 1}{n_F - n_C} = 62.0$$

Tolerances of Transmittance (T)

T_{400nm} (%)	$\lambda_{T50\%}$ (nm)	T_{1200nm} (%)
≥81.0	644±3	≤23

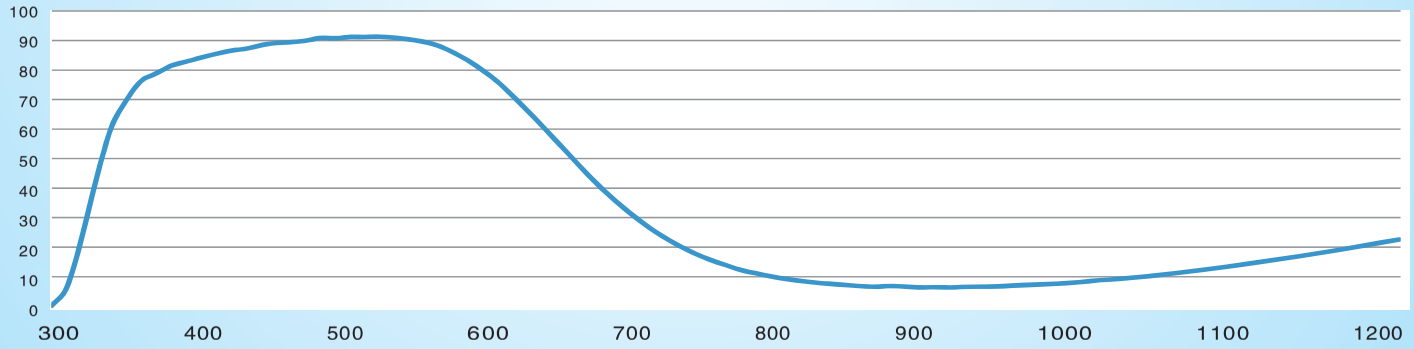
Color Specifications

	x	y	Y	λ_d	P_e
A	0.400	0.425	73.5	501	0.11
C	0.276	0.318	77.9	492	0.12
D_{65}	0.279	0.330	78.1	492	0.12

Properties

Chemical			Thermal				Mechanical					other
D_W	D_A	CR	T_g	T_s	$\alpha_{20\sim120℃}$	$\alpha_{20\sim300℃}$	H_K	F_A	E	G	μ	ρ
1	1		567	644	60	68	523	104	8769	3628	0.209	2.67

Transmittance



QB76

Thickness =0.21 mm Reflection Factor P_d=0.913

λnm	300	320	340	360	380	400	420	440	460	480
τ%	0.1	11.9	46.9	66.8	74.9	79.1	81.9	84.0	85.3	86.8
λnm	500	520	540	560	580	600	620	640	660	680
τ%	87.5	87.7	86.7	83.8	78.1	69.6	58.9	47.5	36.7	27.5
λnm	700	720	740	760	780	800	820	840	860	880
τ%	20.2	14.8	11.0	8.4	6.6	5.5	4.7	4.2	4.0	3.8
λnm	900	920	940	960	980	1000	1020	1040	1060	1080
τ%	3.9	3.9	4.0	4.3	4.6	5.1	5.8	6.5	7.3	8.2
λnm	1100	1120	1140	1160	1180	1200				
τ%	9.3	10.4	11.7	13.1	14.5	16.0				

Refractive index

Symbol	C	d	e	F	g
λnm	656.3	587.6	546.1	486.1	435.8
n	1.538	1.541	1.543	1.547	1.552

Abbe-Number

$$\upsilon_d = \frac{n_d - 1}{n_F - n_C} = 62.0$$

Tolerances of Transmittance (T)

T_{400nm} (%)	$\lambda_{T50\%}$ (nm)	T_{1200nm} (%)
≥78.0	633+3	≤18.0

Color Specifications

	x	y	Y	λ_d	P_e
A	0.407	0.424	75.1	502	0.09
C	0.281	0.320	79.0	493	0.10
D_{65}	0.285	0.332	79.1	493	0.10

Properties

Chemical			Thermal				Mechanical					Other
D_W	D_A	CR	T_g	T_s	$\alpha_{20\sim120℃}$	$\alpha_{20\sim300℃}$	H_K	F_A	E	G	μ	ρ
1	1		560	632	56	66	511	100	8593	3551	0.210	2.68

Transmittance